Amendments to the Claims:

This listing of claims will replace all prior
versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Original): A multiparameter method of
screening for the diagnosis, the prevention or the
treatment of atherosclerosis-related coronary heart
disease (CHD) or stroke comprising;

> defining the disease as atherosclerosis-related
> CHD or stroke;

> defining the normal as free from said disease;

> defining the following parameters as
> atherosclerotic parameters consisting of c =
> the Low-density lipoprotein (LDL) concentration
> parameter in mg/dL or c = the C-reactive
> protein (CRP) concentration parameter in mg/L,
> p = the blood systolic pressure parameter in
> mmHg or p = the blood diastolic pressure
> parameter in mmHg, f = the heart rate parameter
> in s^{-1}, a = the radius parameter along arterial
> radius in cm, T = the temperature parameter of

blood plasma in °C, α = the angle parameter between gravity and the mean velocity of blood fluid in arterial vessels in degree and z = the axial position parameter of diffusion flux along the inner wall in the axial direction of arterial vessels in cm, called the diffusion length;

an individual having the measured values of said atherosclerotic parameters of the following expressions:

$$J = Ac^{\frac{11}{9}}(v^3 D^{16})^{\frac{1}{27}}\left(\frac{g\cos\alpha + fu}{z}\right)^{\frac{2}{9}} \qquad (1.1)$$

or

$$J = Bc^{\frac{11}{9}}p^{\frac{1}{3}}T^{\frac{16}{27}}a^{\frac{2}{3}}f^{\frac{2}{9}}z^{-\frac{2}{9}} \qquad (1.2)$$

and

$$J = E\,c^{\frac{11}{9}}D^{\frac{16}{27}}z^{-\frac{2}{9}}(\cos\alpha)^{\frac{2}{9}} \qquad (1.3)$$

wherein J = the mass transfer flux in 10^{-5} g/(cm^{2}s), A, B and E = the constants of conversion factors, v = the eddy velocity of blood fluid in arterial vessels in cm/s, u = the mean velocity of the blood fluid in cm/s, D = the diffusion coefficient in cm^2/s, and g = the gravitational acceleration in cm/s^2;

the individual having the normal values of said

atherosclerotic parameters;

determining the disease risks yielded by the
differences between said measured values and
said normal values of said atherosclerotic
parameters;

adding all said disease risks together yields a
total risk of said disease;

determining a disease risk level containing said
total risk of said disease;

selecting an atherosclerotic risk factor related
to an atherosclerotic parameter that is the
greatest contribution to said total risk of
said disease so as to result in said risk
factor as a primary therapy target of said
disease;

selecting a greater flux between the LDL mass
transfer flux and the monocyte mass transfer
flux so as to result in said greater flux as a
primary cause in said disease;

selecting a greater concentration level between
the LDL level in serum and the CRP level in

blood plasma so as to result in said greater
level as a secondary therapy target of said
disease;

determining a relative ratio between currently
said total risk and previously said total risk
so as to yield said relative ratio as a
therapeutic efficacy of said disease;

repeating above-mentioned said methods until said
disease risk level is reduced to a normal level
for said individual who requires the therapy to
prevent or to treat atherosclerosis-related CHD
or stroke; and

above-mentioned said methods are written as an
executable computer program named the MMA.exe,
or another name, to be installed into a general
purpose digital computer device to accomplish
said methods and to output a result of said
methods to a display or a memory or another
computer on a network, or to a user.

Claim 2 (currently amended): A method as in claim
1, wherein ~~determining said disease risk yielded by~~
~~the difference between the measured value and the~~
~~normal of said LDL concentration parameter~~the nine

<u>disease risks are yielded by the differences between the measured values and the normal values of the nine atherosclerotic parameters</u>, said method comprising the steps of:

a measured value, c_m in mg/dL, of the individual's LDL concentration in human serum is determined using a medical technique for measuring the concentration of blood constituents or said c_m is determined by the physician,

a normal value, c_n in mg/dL, of said LDL concentration is determined by the physician or said $c_n = 100$ mg/dL for adult,

substituting said c_m and said c_n into the following expression where $c_m \geq c_n$:

$$R_1 = \left(\frac{c_m}{c_n}\right)^{\frac{11}{9}} - 1 \qquad\qquad (1)$$

and

calculating (1) yields ~~said~~ the disease risk R_1 caused by ~~said~~ the LDL concentration parameter related to the atherosclerotic risk factors being an elevated LDL concentration in human serum, high-fat diet, hypercholesterolemia or

Page 6 of 26

other risk factors that increase said LDL
concentration;

a measured value, c_m in mg/L, of the individual's
CRP concentration in human blood plasma is
determined using a medical technique for
measuring the concentration of blood
constituents or said c_m is determined by the
physician,

a normal value, c_n in mg/L, of said CRP
concentration and an equivalent factor, F, are
determined by the physician wherein $F = \left(\dfrac{D_c}{D_L}\right)^{\frac{16}{27}}$,
D_c = the CRP diffusion coefficient and D_L = the
LDL diffusion coefficient or said c_n = 1.0 mg/L
for adult and said F = 0.66,

substituting said c_m, said c_n and said F into the
following expression where $c_m \geq c_n$:

$$R_2 = F\left(\left(\frac{c_m}{c_n}\right)^{\frac{11}{9}} - 1\right) \qquad\qquad (2)$$

and

calculating (2) yields the disease risk R_2
caused by the CRP concentration parameter

related to the atherosclerotic risk factors
being an elevated CRP level in human blood
plasma, systemic inflammation, infectious
agents or other risk factors that increase said
CRP level;

a measured value, p_m in mmHg, of the individual's
blood systolic pressure is determined using a
medical technique for measuring the human blood
pressure or said p_m is determined by the
physician,

a normal value, p_n in mmHg, of said systolic
pressure is determined by the physician or said
p_n = 120 mmHg for adult,

substituting said p_m and said p_n into the
following expression where $p_m \geq p_n$:

$$R_3 = \left(\frac{P_m}{P_n}\right)^{\frac{1}{3}} - 1 \qquad\qquad (3)$$

and

calculating (3) yields the disease risk R_3
caused by the systolic pressure parameter
related to the atherosclerotic risk factors
being an elevated level of blood systolic
pressure, family history of hypertension or

Page 8 of 26

other risk factors that increase said systolic
pressure;

a measured value, p_m in mmHg, of the individual's
blood diastolic pressure is determined using a
medical technique for measuring the human
blood pressure or said p_m is determined by the
physician,

a normal value, p_n in mmHg, of said blood
diastolic pressure is determined by the
physician or said p_n = 70 mmHg for adult,

substituting said p_m and said p_n into the
following expression where $p_m \geq p_n$:

$$R_4 = \left(\frac{P_m}{P_n}\right)^{\frac{1}{3}} - 1 \qquad\qquad (4)$$

and

calculating (4) yields the disease risk R_4
caused by the diastolic pressure parameter
related to the atherosclerotic risk factors
being an elevate level of blood diastolic
pressure, family history of hypertension or
other risk factors that increase said diastolic
pressure;

Page 9 of 26

a measured value, f_m in s^{-1}, of the individual's heart rate is determined using a medical technique for measuring the human heart rate or said f_m is determined by the physician,

a normal value, f_n in s^{-1}, of said heart rate is determined by the physician or said $f_n = 72$ per minute for adult,

substituting said f_m and said f_n into the following expression where $f_m > f_n$:

$$R_s = \left(\frac{f_m}{f_n}\right)^{\frac{7}{9}} - 1 \qquad (5)$$

and

calculating (5) yields the disease risk R_5 caused by the heart rate parameter related to the atherosclerotic risk factors being an elevated level of heart rate, smoking cigarette, depression or other risk factors that increase said heart rate;

a measured radius value, a_m in cm, of the individual's arterial vessel at the lesion-prone sites of arterial bifurcations, arterial branching, arterial curvatures or arterial tapering is determined using a medical

Page 10 of 26

technique for measuring the sizes of arterial

vessels or said a_m is determined by the

physician,

a normal value, a_n in cm, of said arterial radius

is determined by the physician or said a_n = a

value between 0.2 cm and 2.2 cm for adult,

substituting said a_m and said a_n into the

following expression where $a_m \geq a_n$:

$$R_6 = \left(\frac{a_m}{a_n}\right)^{\frac{2}{3}} - 1 \qquad\qquad (6)$$

and

calculating (6) yields the disease risk R_6 caused

by the arterial radius parameter related to the

atherosclerotic risk factors being an increased

size of arterial radius at said lesion-prone

sites or other risk factors that increase the

size of said arterial radius;

a measured temperature value, T_m in °C, of the

individual's plasma fluid in the region at said

lesion-prone sites is determined using a

medical technique for measuring the temperature

of human blood plasma or said T_m is determined

by the physician,

Page 11 of 26

a normal value, T_n in °C, of said plasma

temperature is determined by the physician or

said $T_n = 37$°C,

substituting said T_m and said T_n into the

following expression where $T_m \geq T_n$:

$$R_7 = \left(\frac{T_m}{T_n}\right)^{\frac{16}{27}} - 1 \qquad (7)$$

and

calculating (7) yields the disease risk R_7 caused

by the plasma temperature parameter related to

the atherosclerotic risk factors being an

elevated temperature of said human blood plasma

at said lesion-prone sites, elevated body

temperature-related diseases or other risk

factors that increase said plasma temperature;

a measured value, α_m in degree, of the angle

between gravity and the average velocity of the

blood fluid in the region at said lesion-prone

sites is determined using a medical technique

for measuring the human arterial geometries or

said α_m is determined by the physician,

a normal value, α_n in degree, of said angle is

determined by the physician or said $\alpha_n =$ a
value between the 10° and 60° for adult,

substituting said α_m and said α_n into the
following expression where $\alpha_n \geq \alpha_m$:

$$R_8 = \left(\frac{\cos \alpha_m}{\cos \alpha_n} \right)^{\frac{2}{9}} - 1 \qquad\qquad (8)$$

and

calculating (8) yields the disease risk R_8 caused
by the angle parameter related to the
atherosclerotic risk factors being a reduced
size of said angle or other risk factors that
reduce said angle size; and

a measured value, z_m in cm, of the individual's
axial length of diffusion flux along the inner
arterial wall at said lesion-prone sites is
determined using a medical technique for
measuring the human arterial geometries or said
z_m is determined by the physician,

a normal value, z_n in cm, of said axial length is
determined by the physician or said $z_n =$ a
value between 0.10 cm and 1.00 cm,

substituting said z_m and said z_n into the

Page 13 of 26

following expression where $z_m \leq z_n$:

$$R_9 = \left(\frac{z_n}{z_m}\right)^{\frac{2}{9}} - 1 \qquad\qquad (9)$$

and

calculating (9) yields the disease risk R_9 caused by the diffusion length parameter related to the atherosclerotic risk factors being a decrease in said axial length of the diffusion flux or other risk factors that decrease said diffusion length.

Claim 3-10 (canceled)

Claim 11 (currently amended): ~~A method as in claim 1 having said nine atherosclerotic parameters caused the nine disease risks and~~ The method of claim 2, further comprising: adding said all nine disease risks R_1 to R_9 together so as to yield a total risk of said disease consisting;

a current total risk of said disease related to the currently measured values of said atherosclerotic parameters; and

a previous total risk of said disease related to the previously measured values of said

Page 14 of 26

atherosclerotic parameters.

Claim 12 (currently amended): ~~A method as in claim 1 having said total risk of said disease and~~ The method of claim 11, further comprising: determining a disease risk level containing said total risk of said disease~~, said method~~ comprising ~~the steps of~~:

dividing the disease risk level into the following seven risk sublevels: $0.84 \geq$ first disease risk level ≥ 0.00, $1.75 \geq$ second disease risk level > 0.84, $2.70 \geq$ third disease risk level > 1.75, $3.70 \geq$ fourth disease risk level > 2.70, $4.70 \geq$ fifth disease risk level > 3.70, $5.80 \geq$ sixth disease risk level > 4.70 and seventh disease risk level >5.80; and

selecting a disease risk level containing said total risk of said disease from among seven of said disease risk sublevels.

Claim 13 (currently amended): ~~A method as in claim 1 having said total risk of said disease and~~ The method of claim 11, further comprising: selecting an atherosclerotic risk factor related to

Page 15 of 26

the atherosclerotic parameter having the greatest
contribution to said total risk of said disease so as
to result in said risk factor as a primary therapy
target of said disease.

Claim 14 (currently amended): ~~A method as in
claim 1 having said LDL concentration parameter
caused the disease risk R~~$_1$~~ and said CRP concentration
parameter caused the disease risk R~~$_2$~~ and~~ The method
of claim 2, further comprising: selecting ~~said~~ a
greater flux between the LDL mass transfer flux and
the monocyte mass transfer flux so as to result in
said greater flux as a primary cause in said disease
~~, said method~~ comprising ~~the steps of~~:

selecting the LDL mass transfer flux as a primary
cause in said disease when said $R_1 \geq$ said R_2;
or

selecting the monocyte mass transfer flux as a
primary cause in said disease when said $R_1 <$
said R_2.

Claim 15 (currently amended): ~~A method as in
claim 1 having said LDL concentration parameter
caused the disease risk R~~$_1$~~ and said CRP concentration
parameter caused the disease risk R~~$_2$~~ and~~ The method

of claim 2, further comprising: selecting ~~said~~ a
greater concentration level between the LDL level in
the human serum and the CRP level in the human blood
plasma so as to result in said greater level as a
secondary therapy target~~, said method~~ comprising
~~the steps of~~:

selecting the LDL level in the serum as a
secondary therapy target of said disease when
said $R_1 \geq$ said R_2; or

selecting the CRP level in the plasma as a
secondary therapy target of said disease when
said $R_1 <$ said R_2.

Claim 16 (currently amended): ~~A method as in~~
~~claim 1 having said current total risk of said~~
~~disease and said previous total risk of said disease~~
~~and determining said~~ The method of claim 11, further
comprising: determining a relative ratio between said
current total risk of said disease and said previous
total risk of said disease so as to yield said
relative ratio as a therapeutic efficacy of said
disease.

Claim 17 (canceled)

Claim 18 (currently amended): A method as in claim 1, wherein ~~all the methods in said all processes in claim 1~~ said method has the steps of:

the step 1 of determining the disease risk R_1 yielded by the difference between the measured value c_m and the normal value c_n of the LDL concentration parameter wherein $c_m \geq c_n$ and $R_1 = \left(\dfrac{c_m}{c_n}\right)^{\frac{11}{9}} - 1$, determining the disease risk R_2 yielded by the difference between the measured value c_m and the normal value c_n of the CRP concentration parameter wherein $c_m \geq c_n$ and $R_2 = F\left(\left(\dfrac{c_m}{c_n}\right)^{\frac{11}{9}} - 1\right)$ where $F = \left(\dfrac{D_c}{D_L}\right)^{\frac{16}{27}}$, D_C = the CRP diffusion coefficient and D_L = the LDL diffusion coefficient, determining the disease risk R_3 yielded by the difference between the measured value p_m and the normal value p_n of the blood systolic pressure parameter wherein $p_m \geq p_n$ and $R_3 = \left(\dfrac{P_m}{P_n}\right)^{\frac{1}{3}} - 1$, determining the disease risk R_4 yielded by the difference between the measured value p_m and the normal value p_n of the blood diastolic pressure parameter wherein

$p_m \geq p_n$ and $R_4 = \left(\dfrac{P_m}{P_n}\right)^{\frac{1}{3}} - 1$, determining the disease

risk R_5 yielded by the difference between the

measured value f_m and the normal value f_n of

the heart rate parameter wherein $f_m \geq f_n$ and

$R_5 = \left(\dfrac{f_m}{f_n}\right)^{\frac{2}{9}} - 1$, determining the disease risk R_6

yielded by the difference between the measured

value a_m and the normal value a_n of the

arterial radius parameter wherein $a_m \geq a_n$ and

$R_6 = \left(\dfrac{a_m}{a_n}\right)^{\frac{2}{3}} - 1$, determining the disease risk R_7

yielded by the difference between the measured

value T_m and the normal value T_n of the plasma

temperature parameter wherein $T_m \geq T_n$ and

$R_7 = \left(\dfrac{T_m}{T_n}\right)^{\frac{16}{27}} - 1$, determining the disease risk R_8

yielded by the difference between the measured

value α_m and the normal value α_n of the angle

parameter wherein $\alpha_n \geq \alpha_m$ and $R_8 = \left(\dfrac{\cos\alpha_m}{\cos\alpha_n}\right)^{\frac{2}{9}} - 1$, and

determining the disease risk R_9 yielded by the

difference between the measured value z_m and

the normal value z_n of the diffusion length

parameter wherein $z_n \geq z_m$ and $R_9 = \left(\dfrac{z_n}{z_m}\right)^{\frac{2}{9}} - 1$;

Page 19 of 26

the step 2 of adding all said nine disease risks
R_1 to R_9 in the step 1 together so as to yield a
total risk of said disease consisting of a
current total risk of said disease related to
the currently measured values of the
atherosclerotic parameters and a previous total
risk of said disease related to the previously
measured values of the atherosclerotic
parameters;

the step 3 of selecting a disease risk level
containing said total risk of said disease in
the step 2 from following among seven of the
disease risk sublevels: $0.84 \geq$ first disease
risk level ≥ 0.00, $1.75 \geq$ second disease risk
level > 0.84, $2.70 \geq$ third disease risk level $>$
1.75, $3.70 \geq$ fourth disease risk level > 2.70,
$4.70 \geq$ fifth disease risk level > 3.70, $5.80 \geq$
sixth disease risk level > 4.70 and seventh
disease risk level > 5.80;

the step 4 of selecting an atherosclerotic risk
factor related to an atherosclerotic parameter
having the greatest contribution to said total
risk of said disease in the step 2 so as to
result in said risk factor as a primary therapy

target of said disease;

the step 5 of selecting the LDL mass transfer
flux as a primary cause in said disease when
said R_1 in the step 1 $\geq$ said R_2 in the step 1 or
selecting the monocyte mass transfer flux as a
primary cause in said disease when said R_1 <
said R_2;

the step 6 of selecting the LDL level in human
serum as a secondary therapy target of said
disease when said R_1 in the step 1 $\geq$ said R_2 in
the step 1 or selecting the CRP level in human
blood plasma as a secondary therapy target of
said disease when said R_1 < said R_2; and

the step 7 of determining a relative ratio
between said current total risk of said disease
in the step 2 and said previous total risk of
said disease in the step 2 so as to yield said
relative ratio as a therapeutic efficacy of
said disease; and

wherein said step 1 through said step 7 are
written as an executable computer program named
the MMA.exe, or another name, to be installed
into a general purpose digital computer device

to accomplish said method and to output a
result of said method to a display or a memory
or another computer on a network, or to a user
comprising:

starting the MMA.exe program on said device;

inputting the currently measured values, the
    previously measured values and the normal
    values of the individual's atherosclerosis
    parameters into the input screen of said
    MMA.exe by using the keyboard of said device;

clicking the "update" button and the "calc. risk"
    button of said input screen;

clicking the "evaluate" button of the MMA.exe
    output screen; and

outputting said output screen to a display or a
    memory or another computer on a network, or to
    a user by using said computer device so as to
    produce a result of said methods, called the
    screening report containing a total risk of
    said disease, a disease risk level, a primary
    cause in said disease, a primary therapy target
    of said disease, a secondary therapy target of

said disease and a therapeutic efficiency, to an individual who requires the diagnosis, the prevention or the treatment of atherosclerosis-related CHD or stroke <u>or other cardiovascular disease</u>.

Claim 19 (new): The method of claim 18, further comprising: repeating said method accomplished by using said device until the individual's disease risk level is reduced to a normal level for said individual who requires the therapy to prevent or to treat atherosclerosis-related CHD or stroke or other cardiovascular disease.